

Amendments to the Specification:

Please replace the paragraph beginning on page 4, line 6 with the following amendment paragraph:

A1
Fig. 1A is a flow diagram of a method 100 for graphically representing a network, such as a SAN, in accordance with an exemplary embodiment of the present invention. Fig. 1B is a block diagram of a network 110 in which the method 100 of Fig. 1A is implemented in accordance with an exemplary embodiment of the present invention. The Fig. 1 flow diagram illustrates a methodology which can, for example, be used to display various edges of elements of a network, such as the SAN illustrated in Fig. 2. As referenced herein, an "edge" is any portion of a displayed or undisplayed element, such as a portion of a line used to divide a displayed area into rows, the boundaries used to define each node, and the paths representing connections between the nodes. In accordance with the present invention, the user can selectively display all nodes and connection paths of the network in the manner as shown in Fig. 2. Alternately, the user can selectively collapse any designated portion of the network to simplify the overall display of the network, in a manner as illustrated, for example, with respect to Fig. 3.

Please replace the paragraph beginning on page 5, line 24 with the following amendment paragraph:

A2
In step 108, the nodes and group nodes can be selectively displayed. That is, any group node of the second layer, immediately above the first layer represented by the leaf graph, can be selectively expanded to display nodes contained in the leaf graph which correspond to the group node, while continuing to display connections of the displayed nodes to the remaining group nodes of the second layer which have not been expanded. This is better illustrated by comparing Figs. 2 and 3. Fig. 2 corresponds to a leaf graph of the Fig. 1B SAN 116. As shown in Fig. 2, the SAN includes a first LAN 202, a second LAN 204, a first switch group 206, a second switch group 208, an isolated switch group 256 and an unmapped hub group 252. The first LAN 202 includes four hosts labeled 210, 212, 214 and 216, respectively. The second LAN 204, which can, for example, be a remote LAN, includes hosts 218 and 220, respectively. The first switch group 206 includes a single switch 222 which

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interconnects hosts of the first LAN 202 with various system components. In the Fig. 2 example, these system components include subsystems 224, 226, and a tape 228 connected via a bridge 230 to the switch 222, and components of the second switch group 208. The second switch group 208 includes a single switch 232, and associated system components represented by tapes 234, 236 connected to switch 232, via bridges 238 and [[240]] 239, respectively. The various system components associated with the switch groups 206 and 208 are shown having potential connections to components of the other switch group (e.g., the various system components of the first switch group 206 are connected via a connection 242 to the switch 232). The isolated switch group 256 comprises a switch 244 and a switch 254 both of which are isolated from all other devices in the network. The unmapped hub group 252 contains a hub 250 and a hub 248 which are not mapped to any devices in the network.

Please replace the paragraph beginning on page 6, line 12 with the following amendment paragraph:

A3
In accordance with a first embodiment of the present invention, a displayed representation of a group node of the second layer in the multilayer representation can be selectively expanded to display nodes contained in the first layer, and a displayed representation of nodes in the first layer can be selectively contracted to display group nodes of the second layer. In an alternate embodiment, a displayed representation of superset nodes of group nodes of a third layer in the multilayer representation can be selectively expanded to display group nodes contained in the second layer, and a displayed representation of group nodes in the second layer can be selectively contracted to display superset nodes of the third layer.

Please replace the paragraph beginning on page 6, line 29 with the following amendment paragraph:

A4
In accordance with exemplary embodiments, contraction of any expanded group node can be achieved by, for example, a cursor moved by key activation of a keyboard and/or movement of a mouse-type device. For example, placement of a cursor within the boundaries of the second LAN 204 as shown in Fig. [[1]] 2, or within boundaries of designated areas such as areas 240, and clicking a button on the mouse, can be used to contract the displayed representation of the second LAN 204 into a single icon as shown in Fig. 3 for first switch

A4 group 206. Similarly, where the user wishes to see an expanded representation of a group node, placement of the cursor within the boundaries of the single group node icon 302, and activation of a mouse key, can be used to expand the group node back to its original expanded shape of Fig. 2.

Please replace the paragraph beginning on page 7, line 20 with the following amendment paragraph:

A5 Fig. 4A is a multi-layered representation for displaying nodes, group nodes and superset nodes in accordance with a first embodiment of the present invention. In Fig. 4A, graphs which have been built in a direction from the leaf graph layer 402 to a top graph layer ~~[[406]]~~ 446 are laid out. For each graph, grids are created and populated in a direction from the top graph to the leaf graph. That is, Fig. 4A shows the SAN of Fig. 2 after it has been subjected to a layout process. As shown in Fig. 4A, the top graph is a "virtual" graph because it contains a single group node, represented as a virtual node 408 which need not be actually displayable, but which is used in the layout process. The nodes from a leaf graph layer 402 which are associated with the LAN's 202 and 204, switch groups 206 and 208, isolated switch group 256 and unmapped hub group 252 have been grouped into group nodes that are laid out in a second layer represented as a simple group graph layer 404. The process of recursively building graphs is performed until the layout of all graphs has been completed.

Please replace the paragraph beginning on page 7, line 32 with the following amendment paragraph:

A6 The layout process begins by creating a grid for each group node in the list, starting with the top graph ~~[[406]]~~ 446. Each grid is then populated, starting with the top graph, using nodes from a subsequent graph. That is, a single grid 444 (layer 406) associated with the virtual node 408 is populated with group nodes associated with the graph of the simple group graph layer 406. Grids are then created for each of the two group nodes in the simple group graph layer 406. The two grids labeled 452, 454 in layer 404 correspond to the two superset nodes labeled ~~434, 432~~ 432, 434, respectively, of the simple group graph layer 406.

Please replace the paragraph beginning on page 8, line 22 with the following amendment paragraph:

A6 In Fig. 4B, at block 456, the method involves forming layer 402 (Fig. 4A) for the multi-layered representation. Layer 402 consists of two ~~[[of]]~~ or more nodes 213, 220, 234, 236 for example, each node being represented separately.

Please replace the paragraph beginning on page 8, line 29 with the following amendment paragraph:

A7 At block 460, the group nodes of layer 404 are grouped into layer 406 (Fig. 4A). Layer 406 contains superset nodes (or fabrics) containing group nodes from the prior layer. As implied by its name, a connected-superset node 432 in layer 406 contains group nodes having nodes connected to each other. Group nodes 420, 422, 424, and 426~~[[, and 428]]~~ of layer 404 are contained within connected-superset node 432. As used herein, a connected-superset node contains a subset of all devices connected to each other, i.e., if a node is connected to any node in a superset node, it is part of that superset node, otherwise if the node is not connected to any node in that superset node but is connected to other nodes, it is part of a different superset node consisting of that node and all the other nodes it is connected to.

Please replace the paragraph beginning on page 9, line 11 with the following amendment paragraph:

A8 At block 462, the method involves displaying the superset nodes of layer 406 so connected-superset node 432 is separate from isolated-superset node 434. Moreover, connected-superset node 432 is expandable to display group nodes 420, 422, 424, ~~[[424]]~~ 426 of layer 404 including connections between the group nodes and connections between nodes within each group node. Contrawise, it is collapsible into a single icon as more clearly shown in Fig. 5A. Similarly, isolated-device superset node 434 is collapsible as shown in Fig. 5A, and may be expanded to display group nodes 438, 440 (layer 404).

Please replace the paragraph beginning on page 10, line 8 with the following amendment paragraph:

A9 In operation, a user wishing to expand connected-superset node 502 employs an input device such as a mouse to double click the connected-superset node 502 (Fig. 5A) representation. This results in the display of connected-superset node 502B (Fig. 5B) having collapsed representations of loop groups 512, 514, 516, 518, 520, 522 and 524. Each loop

may be expanded to display the components within the particular loop group. Also, switch groups 526, 528 and 530 are contained in connected-superset node 502B. As with the loop groups, the switch groups may be expanded to display their devices. For example, switch group 526 when expanded, displays a switch 532 and a node 534. A host group 510 containing a node 538 is also shown. Each of the aforementioned groups may be alternately expanded and collapsed as needed. This is also the case for connected-superset node 502B which is expandable and collapsible. To collapse connected-superset 502B, a mouse cursor is moved over a designated area 539, followed by double clicking of the mouse button. This action contracts connected-superset node 502B into connected-superset node 502 of Fig. 5A.
